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| EXAMINER KARDOS, NEIL R | | | | |
| ART UNIT 3623 | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/654,738

Applicant(s)

SENTURK ET AL.

Examiner

Neil R. Kardos

Art Unit

3623

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-10, 29 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-10, 29 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

This is a **NON-FINAL** Office Action on the merits in response to the request for continued examination filed on March 19, 2009. Currently, claims 1, 2, 4-10, 29, and 32 are pending.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 19, 2009 has been entered.

Response to Amendment

Applicant's amendments to claims 29 and 32 are sufficient to overcome the rejections under §§ 101 and 112 set forth in the previous Office Action. Accordingly, these rejections have been withdrawn. However, new rejections have been set forth below.

Response to Arguments

Applicant's arguments with respect to the § 103 rejection set forth in the previous Office Action have been fully considered and are persuasive. The prior art rejections have been withdrawn.

Claim Objections

Claims 1, 2, 4-10, 29, and 32 are objected to because of the following informalities:

Claims 1 and 29: Claims 1 and 29 recite "generating a predicted value using a model executed by an electronic data processing apparatus that is based on censored data." This limitation is awkwardly worded because it appears that the apparatus is based on censored data rather than the predicted value or the model. Clarification is required.

Claims 2, 4-10, and 32: The dependent claims are objected to for failing to remedy the deficiencies of the claims from which they depend.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 2, 4-10, 29, and 32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1 and 29: Claims 1 and 29 are rejected under § 101 because one may not patent every "substantial practical application" of an abstract idea. *See Gottschalk v. Benson*, 409 U.S. 63, 71-72 (1972). MPEP 2106(IV)(A)-(C). If the acts of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. *See Benson*, 409 U.S. at 71-72. MPEP 2106.02. Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers

into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process. MPEP 2106.02.

Here, the claimed invention is an abstract idea (a mathematical algorithm) that is not limited to a particular field; thus it covers every substantial practical application of the algorithm. The claimed invention generates a predicted value and then reduces the error associated with that value. This is merely a manipulation of numbers (i.e. conversion of one number into another number) and is not sufficient to constitute statutory subject matter.

Claims 2, 4-10, and 32: The dependent claims are rejected for failing to remedy the deficiencies of the claims from which they depend.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 4-10, 29, and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 and 29: Claims 1 and 29 recite "computing the output result..." There is insufficient antecedent basis for this limitation in the claims.

Claims 4, 7, 8, and 9: Claims 4, 7, 8, and 9 claim either "the dataset" or "the incomplete dataset." There is insufficient antecedent basis for these limitations in the claims.

Claims 2, 5, 6, 10, and 32: The dependent claims are rejected for failing to remedy the deficiencies of the claims from which they depend.

Allowable Subject Matter

Claims 1, 2, 4-10, 29, and 32 would be allowable if rewritten or amended to overcome the claim objections and rejections under §§ 101 and 112 set forth in this Office Action.

Examiner believes that an interview would be beneficial in order to advance the present application toward allowance.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Rebane (US 7,013, 285), directed to predicting missing observations and stabilizing data samples by reducing error.
- Ferguson et al (US 2003/0149603), directed to operating a non-linear model with missing data in an electronic commerce environment.
- Dempster, A.P., et al., "Maximum Likelihood from Incomplete Data via the EM Algorithm." *Journal of the Royal Statistical Society*, 39:1 (1977) pp. 1-38.
- Joreskog, Karl G., "Censored Variables and Censored Regression." (December 2002) Available at <http://www.ssicentral.com/lisrel/techdocs/censor.pdf>.

- Ramoni, Marco, and Paola Sebastiani, "Robust Learning with Missing Data."
Machine Learning, 45 (2001) pp. 147-170.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neil R. Kardos whose telephone number is (571) 270-3443. The examiner can normally be reached on Monday through Friday from 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on (571) 272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Neil R. Kardos
Examiner
Art Unit 3623

/Neil R. Kardos/
Examiner, Art Unit 3623
/Jonathan G. Sterrett/
Primary Examiner, Art Unit 3623